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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,777	11/13/2003	Shigeru Nakagawa	089992-000000US	8760

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EXAMINER

DIACOU, ARI M

ART UNIT	PAPER NUMBER
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3663

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08/06/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/713,777	Applicant(s) NAKAGAWA ET AL.	
	Examiner ARI M. DIACOU	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,12-15 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) 22-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7,12-14 and 25-29 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 18-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Prosecution Application

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5-16-2008 has been entered.

Response to Arguments

2. In the remarks filed 5-16-2008, applicant argued the following:

A. On page 8, that "Claim 4 has now been placed in independent form based on claim 1, and claims 4- 7 and 12-14 remain dependent from claim 4. Said claims are now clearly in condition for allowance."

B. On page 8, that "Claims 2-3, 8-11 and 15-17 were canceled in response to a restriction requirement. It is believed that it is now appropriate to reinstate claims 8-11 and 15, since they all depend directly or indirectly on allowed claim 4. These formerly withdrawn and canceled claims are now listed as new claims 25-29, all ultimately dependent upon claim 4, as allowed."

C. On page 8, that "Claim 1 has presently been amended to clarify aspects of the claimed invention, and new claims 18-24 copied from unamended claims 4-7 and 12-14 have been added as dependent on claim 1. If claim 1 as now amended is now found to be allowable, it would be also appropriate to reinstate dependent claims 2, 3, 8-11, 15 and 16 as dependent upon claim 1."

D. On page 8, that "Claims 17 remains an unexamined independent claim."

E. On page 9, that "there is no useable description of an SOA therein."

F. On page 10, that "The claimed feature of full compensation for insertion loss is not taught, either expressly or--as the Examiner asserts--impliedly: Col. 2 lines 11-24 is not a reference to full loss compensation associated with an SOA, whether or not optional."

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G. On page 11, that "The deductive conclusion associated with that citation simply does not follow, except by overt and impermissible hindsight reconstruction based on the present disclosure."

H. On page 12, that "the directional coupler modulator type of optical modulator is nowhere to be found."

3. Argument A and B are convincing, all claims dependent from claim 4 are allowed, see below.

4. Argument C is noted, claim 1 however remains unallowable, and as a result, claim 18, which is identical to unamended claim 4 of the last claim set, and its dependents 19-21 have been objected to, and claims 22-24, which were drawn to an unelected invention (see response to election requirement dated 11-9-2005 and rejection dated 11-16-2005), have been withdrawn.

5. Argument D is convincing, claim 17 is cancelled.

6. Argument E is unconvincing, in Figure 8, #210 is clearly labeled an SOA, see also claim 19 of Zah.

7. Arguments F-H is moot in view of the new grounds of rejection, which has been necessitated by amendment.

Election/Restrictions

8. Claims 22-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim (claim 18 is not yet allowable). Election was made **without** traverse in the reply filed on 10-27-2005.

Allowable Subject Matter

9. Claims 4-7, 12-14 and 25-29 are allowed.
10. Claims 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 18 contains the same allowable subject matter and similar enough context to claim 4.
11. Reasons for allowability: Claims 4-7 and 12-13 were rejected under obviousness-type non-statutory provisional double patenting over claims 1-4 and 10-11 respectively of then copending application 10/655769 (2004/0081389). Applicant responded on 5-15-2006 with a terminal disclaimer, which was approved on 5-26-2006, thereby binding the claim sets. Claims 1-4 and 10-11 of 10/655769 have since been patented (USP 6973238) unamended. Instant claims 4-7 and 12-13 would be allowed for the same reasons as claims 1-4 and 10-11 of 10/655769

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah (USP No. 6434175) in view of Koch (USP No. 5394489).

- Regarding claim 1, Zah discloses An optical module arranged in an optical transmission path, comprising:
 - an optical amplifying unit [Fig. 8, #210] configured with a semiconductor [Col. 7, line 38] and disposed in series with and behind [Fig. 8, #210-410] an optical amplifying unit [Fig. 8, #210], wherein the optical amplifying unit amplifies in high gain light input from the optical transmission path [Fig. 8, horizontal axis of fig 8 to the right of #210 reads on this]; and

- an optical element [Fig. 8, #410] configured with a semiconductor [Modulator is disclosed as monolithically integrated with Phasor/DBR in Col. 7, line 4. Phasor/DBR contains an SOA (Col. 6, line 58). Therefore, the modulator is made of semiconductor.], wherein the optical element [Fig. 8, #410] includes an optical modulator [Col. 7, line 24], and propagates the light [Arrow at right of figure 8] amplified by the optical amplifying unit [Fig. 8, #210] to the optical transmission path [horizontal axis of figure 8]

but fails to disclose that:

- "[the SOA] is operative to produce gain of the optical amplifying element is sufficiently high that insertion loss of the optical module is completely compensated."
- The modulator is in series with and behind the optical amplifying unit
- The optical modulator is a directional optical modulator

Koch teaches a laser similar to that of Zah, but has additional disclosure of the optical modulator used, including that it can be before or after the optical amplifier [Col. 3, lines 40-46], and that it can be a directional optical modulator [Col. 2, line 50]. Zah teaches in [Col. 2, lines 11-24] that an SOA is optional, and in [Col. 2, lines 25-35] that the insertion loss of the modulators is 3dB or more, and that the single pass loss of the path is 1-2dB [Fig. 6-7] With the modification of Fig. 3 of Koch, it becomes possible to correct for this loss by changing the gain to compensate for the single pass loss, which is not possible if the modulator is

lossy and in front of the SOA. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to choose an SOA with more than 3dB of gain, and placing it in front of a directional coupling modulator as taught by Koch, for the advantage of optimizing the power and SNR of the Phasar/DBR disclosed in Fig. 8 of Zah.

Conclusion

16. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

17. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/AMD/

8-Aug-08

/Jack W. Keith/

Supervisory Patent Examiner, Art Unit 3663